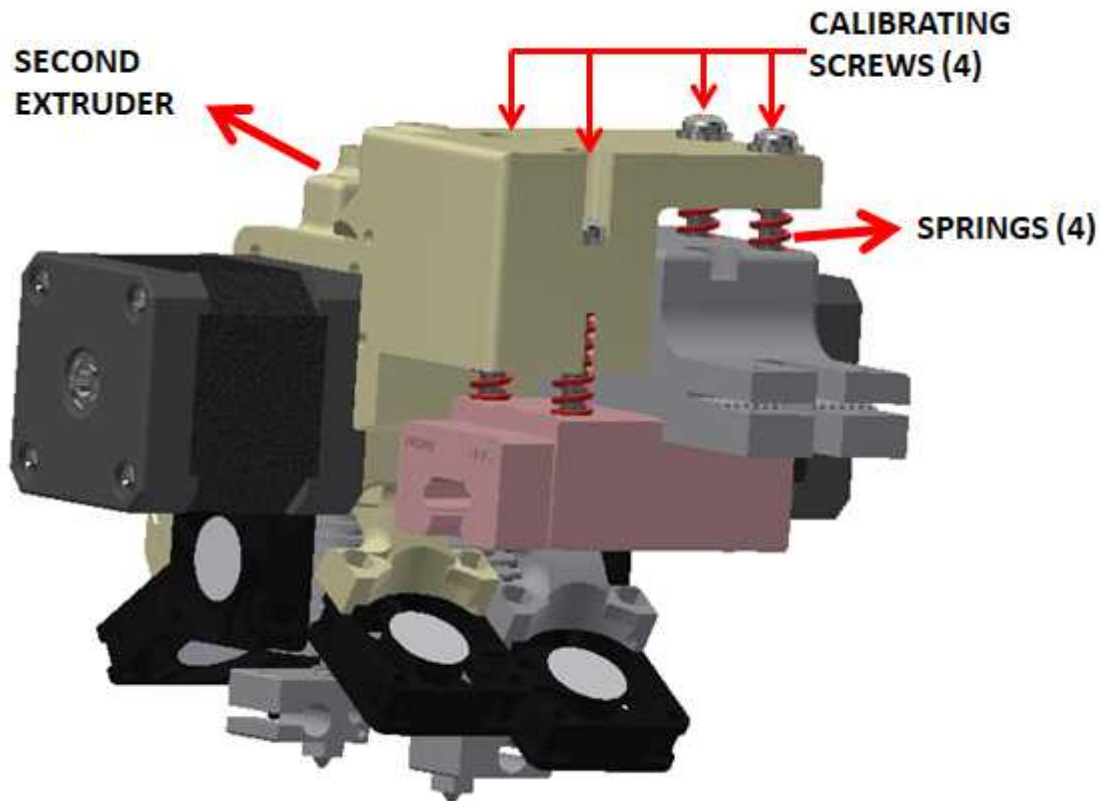


Calibrating your double extruder: CURA

Know your dual extruder

Our double extruders are designed to be calibrated easily on their heights in order that the two nozzles are at the same level when printing. The second extruder is floating over a system of springs in such a way that its height can be modified by screwing or unscrewing the screws that hold it on place (calibrating screws).



To take advantage of the full potential of your double extruder it is very important to take into account these two steps:

1. Calibrate the height of the second nozzle with respect to the main nozzle.
2. Calibrate the relative distance between the second nozzle and the main nozzle.

1. Calibrate nozzle heights

Follow these steps to calibrate nozzle heights:

1. Heat both extruders up to 210°C
2. Home Z axis
3. Calibrate the bed with respect to nozzle #1. If the second nozzle is lower than the first one, release the calibrating screws until it is at a higher level than the first nozzle.
4. Screw the calibrating screws of the second extruder until it is at the same level of the first extruder.

2. Calibrate X-Y relative distances

The slicer must know the relative X-Y distances of the second extruder with respect to the first extruder, so when positioning the second extruder in the print, the printer can position the second extruder exactly where needed.

1. Configure Cura for double extruder printing:

Go to : Machine/Machine settings

- a. Extruder count: 2
- b. Offset X: 30
- c. OffsetY: 0

Machine settings

E-Steps per 1mm filament	0
Maximum width (mm)	500
Maximum depth (mm)	500
Maximum height (mm)	600
Extruder count	2
Heated bed	<input checked="" type="checkbox"/>
Machine center 0,0	<input type="checkbox"/>
Build area shape	Square
GCode Flavor	RepRap (Marlin/Sprinter)

Extruder 2

Offset X	30
Offset Y	0

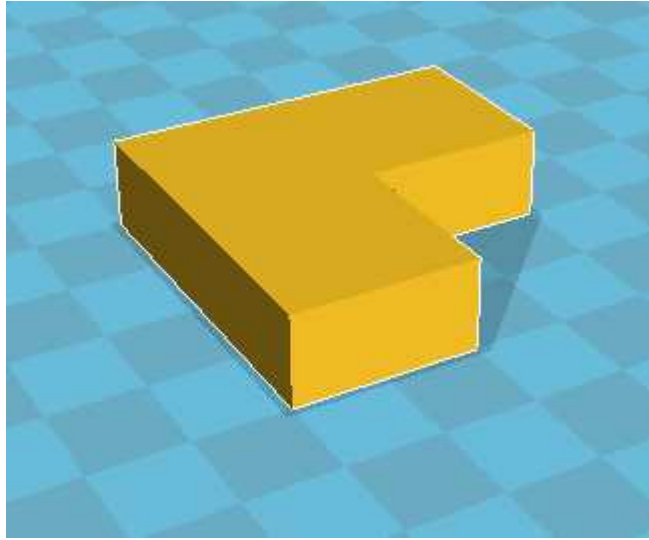
Printer head size

Head size towards X min (mm)	0.0
Head size towards Y min (mm)	0.0
Head size towards X max (mm)	0.0
Head size towards Y max (mm)	0.0
Printer gantry height (mm)	0.0

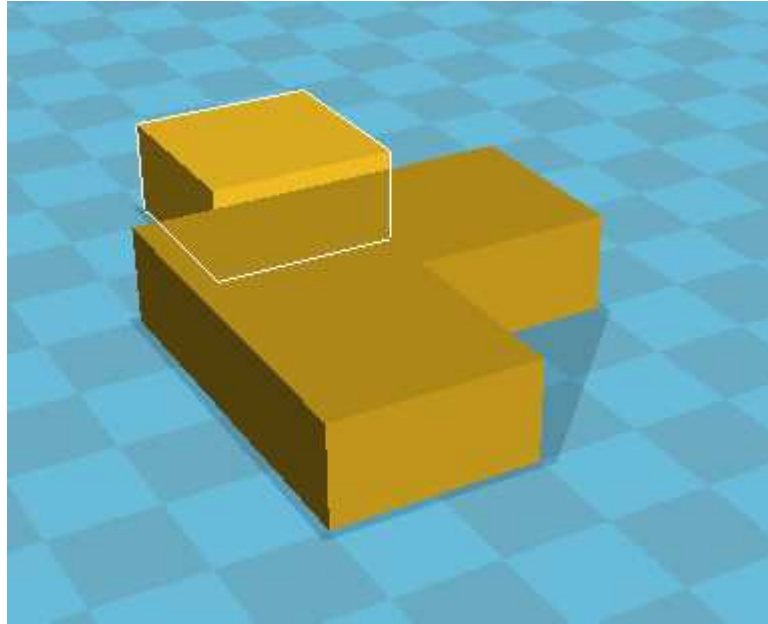
Communication settings

Serial port	AUTO
Baudrate	AUTO

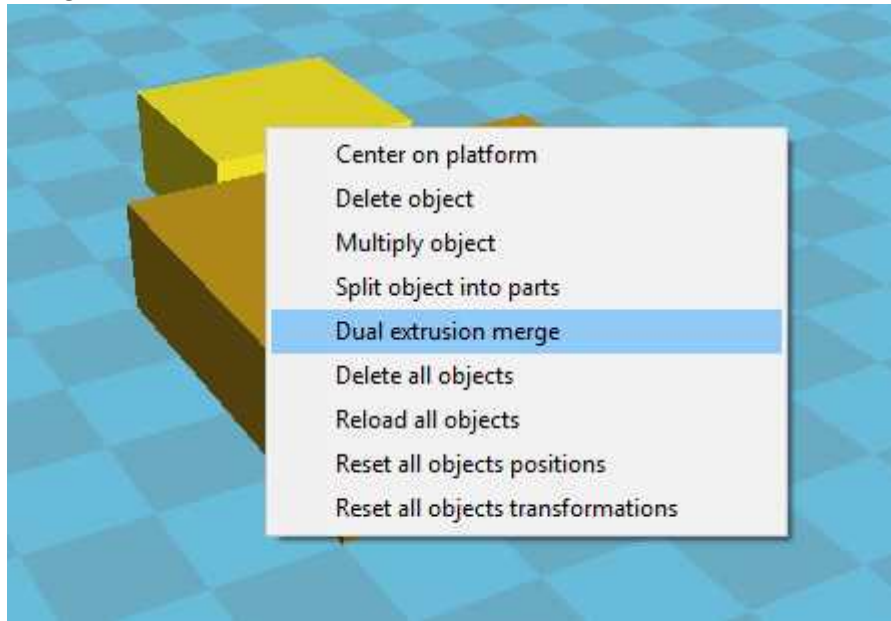
2. Load the calibration models
 - a. Load the model "Double ext 1.stl"



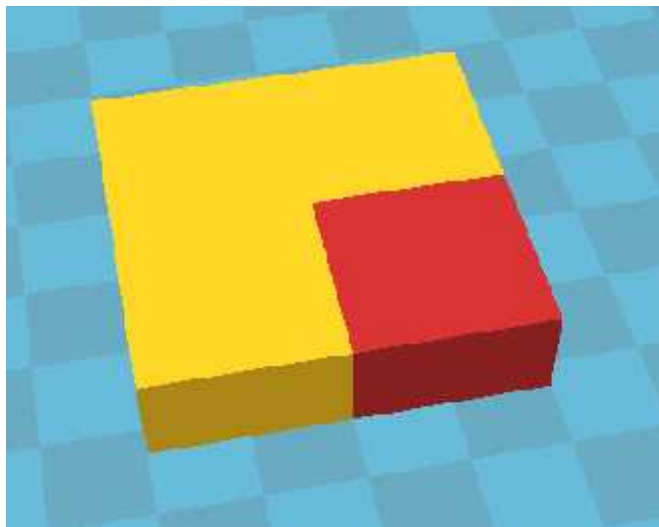
- b. Load the model "Double ext 2.stl"



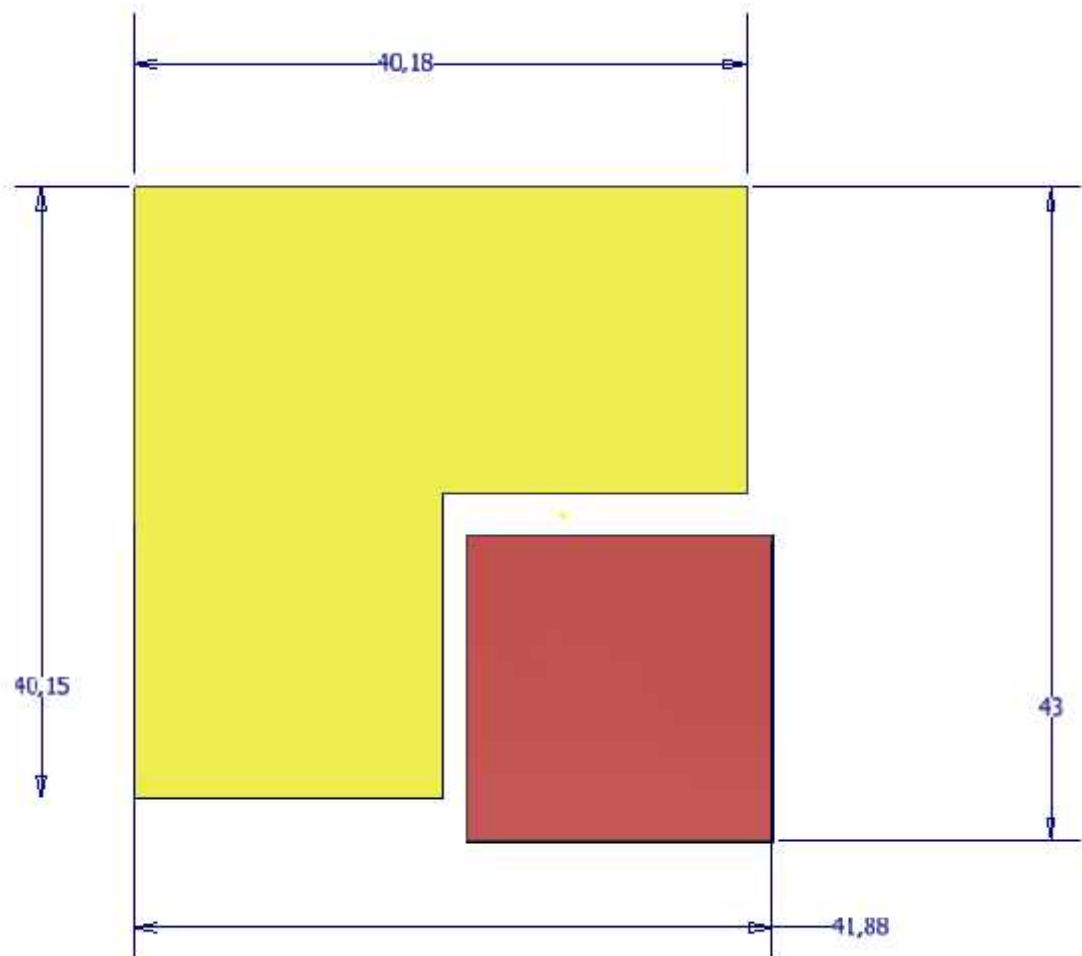
- c. Right click on model “Double ext 2.stl” and select “dual extrusion merge”



Merged models should look like the following figure. Note that model 1 is in **YELLOW** and second model is in **RED**



- d. Print the model, measure the distances and tabulate the results in the given spreadsheet. For example, the printed model has the following geometry:



With the above data fill the spreadsheet as follows. The spreadsheet will calculate the new offsets:

	Actual offset	Ext 1 Meas	Ext 2 Meas	New Offset
X	30	40.18	41.88	31.7
Y	0	40.15	43	-2.85

Insert the new offsets in the machine configuration:

Machine settings		Printer head size	
E-Steps per 1mm filament	0	Head size towards X min (mm)	0.0
Maximum width (mm)	500	Head size towards Y min (mm)	0.0
Maximum depth (mm)	500	Head size towards X max (mm)	0.0
Maximum height (mm)	600	Head size towards Y max (mm)	0.0
Extruder count	2	Printer gantry height (mm)	0.0
Heated bed	<input checked="" type="checkbox"/>	Communication settings	
Machine center 0,0	<input type="checkbox"/>	Serial port	AUTO
Build area shape	Square	Baudrate	AUTO
GCode Flavor	RepRap (Marlin/Sprinter)		

Extruder 2	
Offset X	31.7
Offset Y	-2.85

You can repeat the procedure until both cubes are printed one aligned to the other:

